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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/089,067 | 04/05/2002 | Minoru Takaya | 221608US0PCT | 3041 |

22850 7590 06/03/2004

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

JOHNSON, JONATHAN J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1725

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,067

Applicant(s)

TAKAYA ET AL.

Examiner

Jonathan Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-69 is/are pending in the application.
- 4a) Of the above claim(s) 26-29, 33-37, 43-46, 52-55 and 61-69 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-25, 30-32, 38-42, 47-51 and 56-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 21-69 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 5-31-02.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date, _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 65-69 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention. Applicant timely traversed the restriction (election) requirement in the paper received on 4-27-04. Applicant argues that Pennisi et al. does not teach the inventive step of using two types of carboxylic acids as described in Claim 21. The examiner agrees. Bristol (5,004,509), however, teaches this limitation in col. 13, ll. 35-45). The restriction is maintained despite applicant's traversal.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-25, 30-32, and 38-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Bristol (5,004,509). With respect to claim 21, Bristol teaches soldering flux having an adhesive resin (col. 11, ll. 45-55) and a hardening agent where the hardening agent includes at least two types of carboxylic acids having melting points that are different from each other (col. 13, ll. 35-45).

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With respect to Claim 22, the teachings of Bristol are the same as relied upon in the rejection of Claim 21. Bristol teaches the soldering flux assumes a liquid form (col. 5, ll. 59-65).

With respect to Claim 23, the teachings of Bristol are the same as relied upon in the rejection of Claim 21. Bristol teaches the soldering flux assumes a paste form (col. 5, ll. 59-65).

With respect to Claim 24, the teachings of Bristol are the same as relied upon in the rejection of Claim 21. Bristol teaches the adhesive resin is a thermosetting resin (col. 12, ll. 1-5).

With respect to Claim 25, the teachings of Bristol are the same as relied upon in the rejection of Claim 24. Bristol teaches the thermosetting resin is selected from a modified resin (col. 11, ll. 45-55 and col. 12, ll. 1-5).

With respect to Claim 30, Bristol teaches a soldering powder and a soldering flux mixed with the soldering powder (col. 7, ll. 40-55) where the soldering flux has an adhesive resin (col. 11, ll. 45-55) and a hardening agent where the hardening agent includes at least two types of carboxylic acids having melting points that are different from each other (col. 13, ll. 35-45).

With respect to Claim 31, the teachings of Bristol are the same as relied upon in the rejection of Claim 30. Bristol teaches the thermosetting resin is selected from a modified resin (col. 11, ll. 45-55 and col. 12, ll. 1-5).

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With respect to Claim 32, the teachings of Bristol are the same as relied upon in the rejection of Claim 31. Bristol teaches the thermosetting resin is selected from a modified resin (col. 11, ll. 45-55 and col. 12, ll. 1-5).

With respect to claim 38, Bristol teaches a component mounting board and an electronic component soldered onto said component mounting board (col. 7, ll. 40-55) and a soldering flux between the component mounting board and the electronic component to bond the component mounting board and said electronic component to each other (col. 7, ll. 40-55) where the soldering flux has an adhesive resin (col. 11, ll. 45-55) and a hardening agent where the hardening agent includes at least two types of carboxylic acids having melting points that are different from each other (col. 13, ll. 35-45).

With respect to Claim 39, the teachings of Bristol are the same as relied upon in the rejection of Claim 38. Bristol teaches the soldering flux assumes a liquid form (col. 5, ll. 59-65).

With respect to Claim 40, the teachings of Bristol are the same as relied upon in the rejection of Claim 38. Bristol teaches the soldering flux assumes a paste form (col. 5, ll. 59-65).

With respect to Claim 41, the teachings of Bristol are the same as relied upon in the rejection of Claim 38. Bristol teaches the adhesive resin is a thermosetting resin (col. 12, ll. 1-5).

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With respect to Claim 42, the teachings of Bristol are the same as relied upon in the rejection of Claim 41. Bristol teaches the thermosetting resin is selected from a modified resin (col. 11, ll. 45-55 and col. 12, ll. 1-5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 47-51 and 56-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bristol (5,004,509) in view of Gilleo et al. (6,228,678). Bristol teaches a component mounting board and an electronic component soldered onto said component mounting board (col. 7, ll. 40-55) and a soldering flux between the component mounting board and the electronic component to bond the component mounting board and said electronic component to each other (col. 7, ll. 40-55) where the soldering flux has an adhesive resin (col. 11, ll. 45-55) and a hardening agent where the hardening agent includes at least two types of carboxylic acids having melting points that are different from each other (col. 13, ll. 35-45); and the soldering flux assumes a liquid form (col. 5, ll. 59-65); the soldering flux assumes a paste form (col. 5, ll. 59-65); the adhesive resin is a thermosetting resin (col. 12, ll. 1-5); and the thermosetting resin is selected from a modified resin (col. 11, ll. 45-55 and col. 12, ll. 1-5). Gilleo et al. teach a chip mounted on to a mounting board or motherboard (col. 1, ll. 25-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the circuit board component of

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Bristol to utilize a chip in order to fabricate very small circuit structures (see Gilleo et al. col. 1, II. 20-50).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 571-272-1177.

The examiner can normally be reached on M-Th 7AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Johnson
Examiner
Art Unit 1725